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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,833	05/01/2006	Herbert Peusens	PD030102	6220

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EXAMINER	
HANNON, CHRISTIAN A	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,833	PEUSENS ET AL.	
	Examiner	Art Unit	
	CHRISTIAN A. HANNON	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-12* is/are rejected.

7)☒ Claim(s) *10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is response to applicant's response filed on 9/14/2009. Claims 1-12 are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loke (US 6,311,048) in view of Fajen et al (US 5,517,688), hereinafter Fajen.

Regarding claims 1 and 6, Loke teaches an RF-circuit and method therefor including an amplifier and a controllable mixer (see figure 1, items 108 and 110; Loke), where an oscillator signal and an input signal are supplied to the mixer (see figure 1, "Local Oscillator" and input from item 108; Loke), wherein the input signal comprises a useful signal and further signals (Column 1, Lines 40-41, Loke discloses that received signals contain more than just the useful part but also noise), and wherein an output signal is produced as an output of the mixer (Figure 1, output of item 110 [right side of mixer]), wherein a controller is provided (Figure 1, Item 112; Loke), which applies a control signal to the mixer as a function of the signal quality of the demodulated output signal (Line from item 112 to mixer item 110 of figure 1; Loke), wherein the operating point of the at least one mixing transistor can be set by means of the control signal

(Column 2, Lines 10-15; Column 3, Lines 30-37; Loke), in which case the intermodulation immunity and/or the noise in the output signal can be varied as a function of the operating point of the mixer (Column 3, Lines 19-29; Loke), wherein a controllable portion of the overall gain of the RF-circuit is determined by the operating point of the at least one mixer (Column 4, Lines 13-27; Loke discloses a test for overall system gain dependent on the operating point of the mixer channel). However Loke fails to explicitly disclose that the controllable mixer has at least one mixing transistor. Fajen discloses a controllable mixer comprised of at least one mixing transistor (Figure 1, item 20; Fajen). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the mixer architecture of Fajen into the receiver of Loke, as Loke does not specifically provide for the implementation of the circuit level mixer design, and therefore one of ordinary skill in the art would look to any art-recognized equivalent structure, such as the one disclosed by Fajen.

Regarding claim 2, Loke and Fajen disclose the RF-circuit according to Claim 1, wherein a demodulator which is connected downstream from the mixer and an evaluation circuit are provided for assessment of the signal quality of the demodulated output signal (demodulator item 116 of figure 1 of Loke and evaluation circuit 118 of figure 1 of Loke).

Regarding claims 3 and 7, Loke and Fajen disclose the RF-circuit and method therefor according to Claims 2 and 6, wherein the evaluation circuit assesses the error rate of a digitally coded signal (Loke discloses known CDMA baseband processing functions, one of which is error rate; Column 3, Lines 2-3).

Regarding claims 4 and 8, Loke and Fajen disclose the RF-circuit and method therefor according Claims 1 and 6, wherein a memory is provided for recording initial values, on the basis of which the signal quality an be assessed and optimized (see Loke Column 3, Lines 38-43).

Regarding claim 5, Loke and Fajen disclose the RF-circuit and method therefor according to Claims 4 and 9, wherein the initial values comprise information about a desired minimum signal quality, the symbol rate, the code rate, and/or the modulation method, and optimization routines for reception optimization can be selected as a function of the initial values (Column 4, Lines 13-27; Loke).

Regarding claim 9, Loke and Fajen disclose the method of claim 8, wherein different initial values and/or optimization routines are selected for different modulation methods, code rates and/or symbol rates, Loke discloses for CDMA test values may be selected accordingly (Column 3, Lines 1-13; Column 4, Lines 13-27; Loke).

Regarding claims 11 and 12, Loke and Fajen teach claims 1 and 6 respectively wherein the controllable portion of the overall gain of the RF-circuit is exclusively determined by setting the operating point of the at least one mixing transistor (column 4, lines 13-27 of Loke)..

Allowable Subject Matter

3. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Loke and Fajen teach claim 1, however fail to teach wherein the at least one mixing transistor is a bipolar transistor, wherein the gain of the at least one mixing transistor increases and the intermodulation immunity decreases when the operating point is set such that the collector current is reduced, and wherein the gain of the at least one mixing transistor decreases and the intermodulation immunity increases when the operating point is set such that the collector current is increased.

Response to Arguments

5. Applicant's arguments filed 9/14/2009 have been fully considered but they are not persuasive. Regarding Applicant's assertion that Loke fails to disclose "setting the operating point of the at least one mixing transistor by means of the control signal indicative of the quality of the demodulated output signal" the Examiner respectfully disagrees. (see applicant remarks page 7) The Examiner has construed Loke's teaching of assessing a RSSI indicator to be that measure claimed, used to generate the control signal, in part, to control the operating point of the at least one mixing transistor, or the LNA disclosed therein. It is noted that an RSSI is a measure of a demodulated signal, either in super heterodyne or direct conversion receivers, in both receivers the RSSI is a measure of a demodulated system by definition. Therefore that demodulated signal (RSSI) is used by Loke to control the operating point, or bias level, of the LNA as disclosed at least at column 2, lines 10-15 and further corroborated by the Loke abstract.

Contrary to the Applicant's assertion that "one of ordinary skill in the art would not know which part of the LNA/mixer channel actually receives the bias current, and which effect is caused by which element when the bias current is changed" (Applicant Remarks page 7) is unfounded. Figure 1 clearly shows that both the LNA and mixer, items 108 and 110 respectively, are controlled via the bias control circuit which receives a control signal. Furthermore, it is obvious to one of ordinary skill in the art that a mixer is constructed of transistors, and accordingly Loke discloses that the transistors obviously composing the mixer, merely illustrated as a black box item 110, necessarily and obviously requires transistors, which are clearly controlled via bias signal 112. Loke refers to a singular "LNA/mixer" channel since it is that channel, shown as a receiver in figure 1, that is dually controlled by bias control circuit 112, controlling both the LNA and mixer components of the LNA/mixer channel. It is further noted that as Loke failed to disclose the use of transistors to implement a mixer, the Examiner incorporated the Fajen reference in order to show that a mixer is obviously composed of transistors.

Addressing the Applicant's objection to the use of Fajen as "the negative feedback disclosed in Fajen can [not] be used for setting the operating point of a transistor," the Examiner respectfully disagrees. (See page 8 Applicant Remarks). The Examiner has merely looked to Fajen for a teaching that mixers may be composed of transistors. The Applicant's attempts to bodily incorporate the teachings of Fajen with those of Loke, is overreaching the grounds of the rejection applied herein.

Lastly, in refutation of the Applicant's remark that Fajen fails to disclose an RF circuit including an amplifier and a controllable mixer where a controllable portion of the

overall gain of the RF circuit is determined by the operating point of the at least one mixing transistor as described in claim 1, the Examiner respectfully disagrees. (see page 8, applicant remarks, internal quotations omitted). The Examiner has combined the teachings of Fajen with those of Loke to show that mixers are obviously composed of transistors, therefore when Loke explicitly discloses that a test for overall system gain, or the overall gain of the RF circuit, is determined dependent on the operating point of the mixer channel, which obviously has transistors therein, Loke and Fajen obviously combine to meet the limitations of the claim as applied. (See column 4, lines 13-27 of Loke).

Accordingly all claims remain rejected as set forth hereinabove.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN A. HANNON whose telephone number is (571)272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. A. H./
Examiner, Art Unit 2618
December 3, 2009

/Edward Urban/
Supervisory Patent Examiner, Art Unit 2618